

## REMARKS

Claims 1, 3-7, 11-26 and 28-39, as amended, appear in this application for the Examiner's review and consideration.

Claims 1 and 25 have been amended to recite that the "fluid" is "water" so that there can be no confusion as to what these streams represent. Therefore, the claims now clearly distinguish between the "water streams" and the "food component stream" so that the configuration of the streams to provide high kinetic energy at the intersection point is further defined and apparent. A further amendment is to recite that the water streams are ejected at a linear velocity which is greater than the linear velocity of the food component stream. This further emphasizes the novel features of the invention, in particular that the water streams provide the kinetic energy at the intersection point to froth the product. As these changes are supported by the specification, there is no issue of new matter. Thus, these changes should be entered at this time to reduce the issues for appeal by placing the claims in condition for allowance.

Claims 1, 3-7, 11, 17, 21, 24-28 and 35 were again rejected as being anticipated by US patent 4,392,588 to Scalera, while claims 12-16, 32-34 and 36-39 were rejected as being obvious over Scalera. Also, claims 18-20, 22, 23 and 29-31 were again rejected as being unpatentable over the combination of Scalera and US patent 4,753,370 to Rudick. Reasons in support of these rejections appear on pages 2-4 of the action. Applicant traverses these rejections as to the amended claims.

Scalera relates to a nozzle assembly for cold drink merchandiser. The assembly comprises a body for positioning a central water supply pipe that directs a stream of water into a cup in a substantially vertical direction. At the periphery of the body are placed syrup nozzles which are positioned in a way to direct syrup streams toward the water stream. The water stream and syrup streams intersect at an intersection point above the cup.

The present invention provides a different structure and method than Scalera. The claims recite a particular nozzle arrangement or stream ejection method that uses two water streams to provide high kinetic energy at an intersection point with a food component stream so that the streams mix well and actually form a froth. This occurs because the water streams are ejected at a linear velocity which is greater than the linear velocity of the food component stream. Scalera does not disclose or teach such an arrangement. For this reason, the

anticipation rejection of the claims based on Scalera has been overcome and should be withdrawn. In addition, it is respectfully submitted that there also should be no obviousness rejection due to the unexpected benefits provided the structure and method of the present claims.

In the present invention, water at high velocity coming from two angles impacts on the concentrate placed more closer to or at the vertical plane thus resulting immediately in good and intensive mixing and frothing of the created beverage. Scalera fails to recite such a structure arrangement as well as fails to suggest the use of a differential of linear velocity to achieve mixing. Instead, Scalera teaches a single large water stream comes in the middle while the concentrate streams are shot at the water stream from different angles. The problem inherent in Scalera's design is that a large water stream as arranged just simply enables dilution of the concentrate but not good mixing or frothing. Also, the linear velocity of the concentrate is furthermore limited by the higher viscosity of the concentrate thus reducing considerably the kinetic energy at the point of impact.

Thus, the present invention not only provides the unexpected advantage of uniform mixing of various liquid and product concentrate streams but also provides sufficient frothing to create froth on the top of the resulting product or beverage. In order to create this froth, it is necessary to provide sufficient kinetic energy at the intersection point where the fluid and food component meet. The way the Scalera system is configured, it cannot produce the necessary kinetic energy to provide a froth because the stream of water is too large and not correctly positioned. Scalera's water stream provides little energy when impacted by the syrup streams and is not able to create extensive mixing to form a froth. Of course, this is of no concern to Scalera since he is not trying to prepare a beverage that has a froth but is merely trying to make sure that the water stream is directed into the cup and carries the concentrate streams with it.

The present invention and claims require at least two water streams forming jets at an angle that are forced to impact at a certain velocity on a food component stream and not the opposite way as taught by Scalera. The resulting impact of this configuration is such that the streams form a fan-shaped spray cloud in direction of the cup (see page 4 and paragraph [0036] of the application). Scalera's large center stream of water can mix with a thin stream of syrup due to the fact that syrup can dilute in a large water stream. There is insufficient energy at the intersection point to cause mixing, primarily due to the limitation on the velocity of the syrup

due to its viscosity. Therefore, a sufficiently high velocity for mixing and frothing of the beverage cannot be obtained with this arrangement as it does in the present invention.

In addition, the direction of the water stream of Scalera can provide mixing only for low viscous syrups that have high dilution factors (i.e., low total solids in the final beverage). On the contrary, the present invention can produce frothed beverages within a wide range of viscosity and dilution factors (e.g., cappuccino beverages). Therefore, the invention works in a way opposite to that disclosed by Scalera in order to achieve a beneficial effect for generating a certain amount of stable froth (See Tables 1-2 of the present specification). This is accomplished by providing at least two fluid (or water) streams with sufficient energy to impact on the food component (e.g., a liquid concentrate stream). The streams are placed in a certain arrangement for ejecting the streams, such as at a certain angle between the fluid and food component streams, in order to both provide the best results on mixing and frothing and control the direction of the resulting stream mixture into the cup.

Therefore, providing two water streams instead of a single large stream and configuring the water streams differently with respect to the concentrate stream as presently claimed is not an obvious modification of Scalera. The skilled artisan obtains no knowledge or motivation from Scalera to provide more than one large water stream and to configure the water ejection point closer to the vertical line than the ejection points of the syrup lines. As the present claims define the structure that provides these features, they are not obvious from Scalera.

Applicants also traverse the rejection of claims 12-16, 32-34 and 36-39. The recited features represent preferred engineering design implementations of the inventive system and method rather than a determination of these parameters by routine experimentation. The fact that the independent claims are not disclosed or taught by any prior art reference demonstrates that the preferred engineering design implementations recited in claims 12-16, 32-34 and 36-39 could not have routinely determined by experimenting with a prior art system or method. Instead, the features of these dependent claims further define the patentable aspects of the present invention.

In view of the above, it is respectfully submitted that all claims are patentable over Scalera and the anticipation and obviousness rejections should be withdrawn.

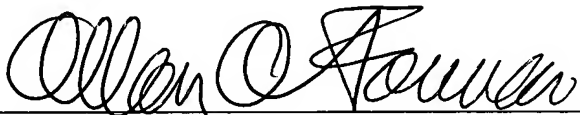
As noted, the Rudick patent was cited in combination with Scalera to reject certain claims. The fact that certain peristaltic pumps were previously known does not teach or

suggest that they should be used in the device or method of the present invention. Furthermore, even if Rudick and Scalera are combined, a skilled artisan would not arrive at the presently claimed invention, since there would be only one water stream arranged as disclosed by Scalera. Rudick does not suggest any other arrangement so that he does not cure the deficiencies of Scalera. Instead, Rudick relates to the mixing of a beverage in a mixing nozzle and not in a free flowing state. Therefore, Rudick is not appropriate for a hygienic mixing or frothing of a beverage. For these reasons, the combination rejection based on Scalera and Rudick should be withdrawn.

Accordingly, the entire application is believed to be in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree, then a telephonic or personal interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the claims.

Respectfully submitted,

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Date

  
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